

REMARKS

Claims 47-49, 51-55, and 57-66 are pending in the present application. Claims 47-49, 51-55, and 57-66 have been rejected under § 103 as being unpatentable over Kawai US Patent No. 5,994,963 (Kawai) in view of Nalbant 6,763,114 (Nalbant), Meiksin et al. 6,370,396 (Meiksin), and Gerfault 5,453,717 (Gerfault).

For at least the reasons outlined below, it is believed that the claims are patentable over the cited references.

The Office Action cites Kawai, Figures 1 and 2, to disclose a conventional portable telephone arrangement, including a power amplifier 15, in Figure 2. The Office Action then states that "Kawai is silent on the details of the structure that makes up the power amplifier 15." However, Figure 3 of Kawai is a detailed circuit diagram of the power amplifier 15 shown in Figure 2. (Col. 2, line 9). The power amplifier of Figure 3 has two amplifier circuits 24 and 25, where the transistors 27 and 34 function as amplifying elements. Kawai goes on to describe problems with this power amplifier - that the structure requires the positive power sources respectively functioning as the drain voltage sources for the transistors 27 and 34, and the negative power sources respectively functioning as the gate bias sources for the transistors, which increases the production cost and prevents down sizing. (Col. 2, lines 47-57). Kawai then offers solutions to the disadvantages mentioned above (see Figures 4-13). Kawai states that the "object of the present invention is to provide an amplifier circuit and a multistage amplifier circuit which requires only a positive power source and does not require any negative power source." (Col. 2, lines 62-65). Kawai then offers various solutions relating to amplifier circuits using one or two FETs, one of which is provided with an input signal at its gate.

The Office Action states that it would have been obvious to replace the amplifier structure of Kawai with that of Nalbant "because as the Kawai reference is silent on the exact structure of the amplifier '15' of Kawai one of ordinary skill in the art would have been motivated to use any art-recognized equivalent amplifier structure such as the one taught by Nalbant." (Office Action, page 3). As mentioned above, Kawai is not silent, and furthermore, provides guidance as to how the amplifier 15 should be implemented.

Nalbant discloses an audio amplifier for powering speakers. Note that there is no teaching or suggestion in Nalbant that a bridge power amplifier would be suitable for an application such as the application described in Kawai. The Office Action points out that the Nalbant circuit may be used in "applications requiring low power consumption and needing high power output." In fact, looking at that passage in context, Nalbant teaches away from uses such as in Kawai:

"Thus, the circuit also may be used in other high fidelity applications requiring low power consumption and needing high power output such as battery powered compact disc players, digital audio tape, and DVD players. However, it is anticipated that the circuit is also useful for nonportable applications including desktop computers." (Col. 9, lines 15-20).

Nalbant appears to teach that the circuit is suitable for high fidelity (i.e., audio) applications and nonportable applications such as computers. Applicants fail to see any reason why the audio amplifier described in Nalbant would provide any advantage (or, for that matter, even function properly) over the various solutions taught by Kawai. Given the teaching of both Kawai and Nalbant, there appears to be no suggestion to combine their teachings.

The Office Action then describes Meiksin and Gerfault and states that "these references provide further motivation to one of ordinary skill in the art to make the obvious combination mentioned above involving the replacement of the amplifier 15 of Kawai with bridge amplifier

structure like that of Nalbant and that is so as to provide for an efficient amplifier to power the antenna as taught by Meiksin and Gerfault." (Office Action, page 3).

Meiksin relates to a facility-wide communication system that is designed to be used in energy-transmission-limited environments, such as an underground mine. As Meiksin explains, in environments like underground mines, the transfer of electromagnetic energy is blocked or limited, and that conventional wireless communication over long distances in these environments is not possible. To address this problem, Meiksin teaches the use of off-the-shelf hand-held radios, in combination with strategically locating RF transceivers throughout the site (e.g., a mine). The radios communicate with the closest transceiver, which is networked (via CAT 5, etc.) with other transceivers. The network of transceivers effectively relays communications from radio to radio. (col. 1, lines 15-48). With just the transceivers and radios, the system of Meiksin still can not provide communication between the surface and the mine interior. Meiksin therefore teaches a through-the earth (TTE) communication system to enable two-way communication between the surface and the mine interior. (Col. 4, lines 28-35). The TTE communication is accomplished by magnetic coupling of energies at low a frequency in the range of 3 kHz to 8 kHz, between loop antennas coupled to TTE transceivers. (Col. 4, lines 35-39).

The Office Action states that "Meiksin discloses that a bridge type power amplifier is used to power an antenna so as to enable the supply of high current into the antenna without the need for a high voltage." (Office Action, page 3). Note that the bridge power amplifier described in Meiksin (amplifier 1505 in FIG. 15) is a low frequency amplifier, operating in the range of 3 kHz to 8 kHz. (See, Col. 15, lines 17-20; Col. 14, lines 57-58; Col. 4, lines 35-39). In contrast, Kawai discusses signals in the range of 900 MHz (e.g., see FIG. 6). The bridge amplifier 1505 of Meiksin is only used by the TTE system for transmitting low frequency signals through the

ground between the surface and the interior of the mine. This is a very specialized use, and there is no motivation or suggestion in Meiksin or Kawai that the bridge amplifier 1505 would be usable for applications of the type, and in the frequency range as those described in Kawai.

Gerfault discloses an H-bridge type power amplifier and blocking means (e.g., Figure 1). However, there is not suggestion or motivation in Gerfault or Kawai for their combination. It is unclear how the H-bridge power amplifier of Gerfault would provide a better solution over the solutions taught by Kawai. Furthermore, using the bridge amplifier of Gerfault in the Kawai application would involve bringing in multiple transformers (transformers Tr, T1, T2, T3 , T4), which presumably would increase the size, cost, and complexity of the Kawai amplifier circuit, compared to simpler amplifier solutions taught by Kawai (e.g., Figures 4-12). This seems contrary to a primary the object of Kawai, that is, to eliminate disadvantages, including issues relating to production costs and sizing. (Col. 2, lines 56-61).

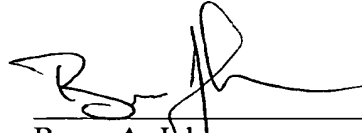
Conclusion

It is respectfully submitted that all claims are patentable over the prior art. It is further more respectfully submitted that all other matters have been addressed and remedied and that the application is in form for allowance. Should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Bruce A. Johnson, Applicants' Attorney at 512-301-9900 so that such issues may be resolved as expeditiously as possible.

Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 to deposit account number 50-3864 (Johnson & Associates).

Respectfully Submitted,

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